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ORIGINAL RESEARCH

Implementation of a national, nurse-led telephone health service in Scotland: assessing the consequences for remote and rural localities

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ABSTRACT

Introduction: Internationally, nurse-led models of telephone triage have become commonplace in unscheduled healthcare delivery. Various existing models have had a positive impact on the delivery of healthcare services, often reducing the demand on accident and emergency departments and staff workload 'out of hours'. Our objective was to assess whether a model of centralised nurse telephone triage (NHS 24, introduced in Scotland in 2001) was appropriate for remote and rural areas. In this qualitative study the views and perspectives of health professionals across Scotland are explored.

Methods: Thirty-five participants were purposively selected for interviews during 2005. Two types of interview were conducted: detailed, semi-structured, face-to-face interviews with key stakeholders of NHS 24; and briefer telephone interviews with partners from NHS Boards across Scotland. A constant comparative approach was taken to analysis. Ethical approval for the study was obtained from the Scottish Multi-site Research Ethics Committee.

Results: The findings are comparable with other research studies of new service developments in remote and rural health care. The rigidity of the centralised triage model introduced, the need to understand variation of health service delivery, and the importance of utilising local professional knowledge were all key issues affecting performance.

Conclusion: Remote and rural complexities need to be considered when designing new healthcare services. It is suggested that new health service designs are 'proofed' for remote and rural complexities. This study highlights that a centralised nurse-led



telephone triage model was inappropriate for remote and rural Scotland, and may not be appropriate for all geographies and circumstances.

Keywords: nurse teletriage services, telephone advice, remote and rural health.

Introduction

Nurse-led models of telephone triage have become a common feature of unscheduled healthcare delivery in a range of international settings. Australia¹, New Zealand², Canada³ and the UK^{4,5} all report examples of such developments, although structures vary in terms of geographical coverage and levels of integration with existing health services. In general, these models use nurses to triage calls, offering patients healthcare advice if appropriate, or directing them on to other healthcare providers, such as accident and emergency (A&E) departments or GPs. In some situations (eg NHS Direct in England, HealthDirect in Australia) patients are told who to contact but must make that contact themselves. In other settings (eg in some integrated sites in England, NHS 24 in Scotland) patient demographic and clinical data are passed directly to the next healthcare provider^{6,5}. Although early professional enthusiasm towards telephone triage was hampered by concerns about the medical risks⁷, the advantages of such models have proven to be flexibility, comprehensiveness and easier integration of care among health professionals⁸.

In the UK, the introduction of nurse telephone triage has also been beneficial, with NHS Direct reducing the volume of calls to A&E departments⁹. NHS Direct and NHS 24 have also shown evidence of reducing the volume of advice calls to GPs^{4,10,5}. Less is known about the consequences for remote and rural areas of the introduction of centralised triage models; they may weaken the social structures of rural communities¹¹, and may not always be appropriate due to access, distance to travel¹² and differences in the natural history of these typically more traditional settings¹³. Such issues have been raised by the British Medical Association which has attempted to address the need for different

approaches to rural healthcare provision through rural proofing policies¹⁴. Health professionals in remote and rural areas play a valuable role in sustaining social structures, not only through the provision of health care, but also by their social and economic contribution to the rural community¹¹. Often these primary healthcare professionals manage a wide array of health and social problems¹⁵ and are socially accepted as key individuals in the community¹⁶.

Prior to the introduction of NHS 24, there was substantial variation in the structure of out-of-hours healthcare delivery. During the late 1990s, GP co-operatives (where groups of GPs provided out-of-hours care within a structured organisation) were in operation for approximately 75% of the Scottish population^{17,18}. However, the majority of co-operative services operated in urban settings; distance and geography made them challenging to develop in remote and rural areas. Out-of-hours service delivery in these areas depended, in the main, on individual practices or small rotas⁵. Co-operatives also operated in different ways, with some using nurses to receive calls before passing them on to a GP, and others using only GPs to accept and respond to patient calls¹⁸.

The organisational structure developed by NHS 24 differed from other UK telephone triage services. First, NHS 24 was integrated as a central part of the NHS from the outset, working with key partner services such as the Scottish Ambulance Service, A&E departments and GP co-operatives. Second, NHS 24 became the first and only point of communication for all patients contacting GP services out of hours. Finally, it was introduced as a special Health Board with a national remit to provide 'accessible, high quality, consistent and sensitive healthcare service to the people of Scotland'¹⁹ irrespective of geographical location.



The implementation of NHS 24 was geographically phased; launched in 2002 it was rolled out across Scotland and became fully operational by December 2004. As part of the service development, three contact centres were put into operation in the north, east and west of Scotland to provide the base for triage of all out-of-hours calls. In response, to accommodate NHS 24, NHS Highland (Scotland's largest rural board) set up an administrative support unit (known as the Hub) to co-ordinate local practices. The Hub also covered island boards, and was seen as a mechanism that would allow an interface with NHS 24.

Early evaluation results of NHS 24's implementation in the first site revealed concerns regarding increasing workload, clinical safety and lack of communication between NHS 24 and its partner organisations²⁰. Although not directly linked with the introduction of NHS 24, the new national General Medical Services (nGMS) contract in 2004 significantly changed out-of-hours service provision^{21,22}. The contract allowed GPs to opt out of the provision of services during the out of hours period. By September 2005, 94% of Scotland's 1036 general practices had opted-out of providing out-of-hours care for their patients²³.

In this article we describe stakeholder and partner views on the complexities of implementing a national nurse triage model in remote and rural communities, part of a larger evaluation of the implementation of NHS 24²⁴.

Methods

Two types of interview were conducted: detailed, semi-structured, face-to-face interviews with key stakeholders, and briefer telephone interviews with partners (Table 1).

Stakeholders were defined as senior-level individuals working on the design and implementation of NHS 24. These stakeholders were purposively selected to include a range of views from various sectors, including the Scottish Executive (now the Scottish Government) Health Department (the policy sponsors for NHS 24), NHS 24

executives, health board management, the Scottish Ambulance Service, A&E consultants, and any other relevant individuals (eg located within secondary care, the Royal College of Nursing and Royal College of General Practitioners). These interviews were conducted between January and July 2005.

Partners were defined as individuals with responsibility for the delivery of care within one of the partner organisations. These individuals were not responsible for the design and implementation of NHS 24 itself. Participants were mainly medical directors and managers/ clinical leads for out-of-hours services. Again, partners were purposively sampled in order to gather professional opinion and views on NHS 24 as a service, its delivery and extent of partnership working taking place. Assurances of confidentiality were given to every participant. By conducting interviews in all NHS Boards throughout Scotland, the experiences of the urban settings could be compared with those of remote and rural settings. The Scottish Executive eight-fold Urban Rural Classification (2003–2004) was used to demonstrate the urban and rural variation in the Scottish population. The classification of a 'large urban area' is greatest in Glasgow (92.4%), in comparison to Western Isles and Highland classified as 69.6% and 68.9% 'remote rural'²⁵.

Ethical approval for the study was obtained from the Scottish Multi-site Research Ethics Committee.

Data collection

The interview schedule was developed from previous interviews conducted in the earlier phase of implementation²⁰ and from further reading of the literature. Topics included individual views on the concept of NHS 24, the application of call virtualisation (where one NHS 24 centre can take patient calls from another), the location of NHS 24 and GP services in one site (known as coterminosity), similarities and differences in the rollout across the country, service delivery in remote and rural areas, and discussions about possible alternative models.



Table 1: Type of interview and study participants

Type of interview	Participants (n)
Face-to-face interview with key stakeholders	
Scottish Executive (SEHD)	2
NHS 24 executives	
Board	1
Executive team management	4
Senior management	3
Scottish Ambulance Service, A&E, Primary Care Trust	5
Other	5
Telephone interview with partners	
Out of hours clinical leads/ medical directors	15
Total	35

A&E, Accident and emergency; NHS, National Health Service.

Face-to-face interviews with key stakeholders lasted approximately 1 hour, at a time and location convenient to them. Two pilot interviews were conducted, the details of which were included in the research due to their relevance. All interviews were recorded, with consent from the participant. Telephone interviews with medical directors and managers/ clinical leads for out-of-hours services lasted for approximately 40 min. These participants gave verbal consent for the interviews to be recorded.

Analysis

Interviews were anonymised, transcribed verbatim, and entered into a qualitative data analysis software package (QSR NU*DIST 6; Melbourne, Vic, Australia). A constant comparative approach was taken to analysis²⁶. Members of the research team reviewed the transcripts extensively, and emerging themes were identified. A full coding framework was then established and applied to all transcripts.

Results

Analysis was focused on the impact of implementing NHS 24 in remote and rural communities. Analysis of the data revealed a number of challenges during the implementation in remote and rural Scotland, including:

- the rigidity of the NHS 24 model
- understanding local variation of health service delivery
- achieving a balance between maintaining national clinical standards and local service delivery
- the indirect impact of the introduction of the nGMS contract also affected the implementation of NHS 24.

Rigidity of the NHS 24 model

Partners felt that the national model was rigid, and they were unsatisfied with the depth of knowledge applied at a local service delivery level.



The obstacle was the inflexibility of NHS 24 to adapt to the needs of a rural board like ours. (Medical Director [P25])

And that's where I think the rural patients have lost out, because they're part of the wider population and they're treated as that. (NHS 24 [P11])

The introduction of NHS 24 meant radical change for patients in remote and rural communities, who had been used to local service delivery, and now patients were a small part of a national service, where calls were being triaged by nurse advisors in central locations. Respondents felt this approach was a disadvantage to these patients.

Understanding local variation of health service delivery

Given the relative sparsity of the rural Scottish population, most respondents expressed concern that there was little recognition of the differences in healthcare response required for patients in remote and rural communities:

The crucial difference is that the workload is not an issue it's the geography in rural areas. We have small numbers of people scattered over a wide geographical area. So we can't expect to deliver the same pattern of care. (Medical Director [P25])

The significant worry about the more remote and rural areas is that, you know, maybe they don't have A&E at night that can provide, so they may have to travel huge distances at night in bad weather, plus then you may tie up an ambulance that may well be needed for something else. (A&E3 [P15])

I think in remote and rural areas the expectation about how health care is delivered is poles apart from what we are and I think it's [NHS 24] probably been a step too far. (NHS 24 [P11])

Many respondents provided evidence that remote and rural patients were experiencing a different service in comparison

to their urban counterparts. Primary Care Emergency Centres were more accessible for the urban population and respondents recognised the reality of lack of access to healthcare services for patients particularly in remote and rural areas of Scotland:

If you live 40 miles from a hospital and you are not getting a satisfactory service over the phone then people are going to be very anxious. (Medical Director [P24])

It's much more real to them because of their awareness of lack of access to anything, whereas if you lived in Sauchiehall Street [Glasgow], well it's not exactly a big deal if you can't get through to NHS 24. (NHS 24 [P5])

There was little understanding of the resources available at a local level:

We are running on the bare minimum of the service and we always have done. Our ability to deal with emergencies is based on the appropriate use of those resources and when you have a third party tasking those resources it makes it quite difficult. (Medical Director [P34])

It took time for NHS 24 to recognise differences in remote and rural service delivery, adding to partner frustration. A number of respondents indicated that urban patients had other options and could 'use their feet' to transport themselves to surgeries and primary care emergency centres. For some remote and rural areas there were extensive distances to travel, often on single-track roads.

National versus local service delivery

By adhering to a centralised nurse triage model, NHS 24 found it challenging to accommodate the maintenance of national clinical standards, while enabling local variation to develop to meet remote and rural circumstances. This led to a perception that NHS 24 had reduced the service for



patients in remote and rural areas and recognition among respondents that the introduction of NHS 24 had been greater in such communities:

If you're used to knocking on the door of your GP and they come to see you, to suddenly have this massive national organisation that you're phoning who apparently, or appears not to have the detailed information about the fact that you live up a ten-mile track, then I think that there is some challenges there. (NHS 24 [P12])

A 'regional franchise' model, using local professional knowledge for those residing in remote and rural communities, was the preferred option of most respondents.

They [urban GPs] haven't had to take such a leap as the guys rurally, the patients rurally where it was their own doctor maybe all or a lot of the time, real personal service, they know the nurse on the ground, they know whoever's dealing with, they've built trust there to now... 'Who do I phone?' It's not even Inverness, it's Aberdeen...sometimes they go through to Glasgow! (NHS 24 [P4])

We would have local triage by our own staff who were built into our team so that they would triage the calls and they would advise the patient according to their local geography and their local knowledge of where our assets were at a particular time. (Medical Director [P25])

Respondents felt NHS 24 should have identified the service needs of remote and rural communities rather than expecting communities to accept and adapt to the service. However, not all respondents felt the need for local triage; as in previous research, stakeholders from the Scottish Ambulance Service, with their experience of national models, were more positive about centralised triage and the use of call virtualisation²⁰.

Impact of the new General Medical Services contract

At the time of implementation, NHS 24 was not the only reported concern about out-of-hours health service delivery in remote and rural Scotland. Although not directly linked to the introduction of NHS 24, the new national GMS contract was implemented within a similar timeframe and impacted on service delivery. The subsequent opt out, of out-of-hours care by GPs, resulted in the significant re-design of out-of-hours services across the whole of Scotland. This re-design was felt more acutely in remote and rural areas and was reported by respondents.

So it's also a challenge both for GPs to opt out then and for the community to accept any sort of other service as being the same. (Clinical Director [P32])

Prior to the new GMS contract, remote communities relied mainly on a traditional model of care with GPs retaining responsibility for patient care around the clock, at relatively low levels of demand. Therefore loss of community health services was felt more acutely in remote and rural Scotland. As NHS 24 was rolled out across the country and call-back queues (when nurses call back patients instead of dealing with them immediately) lengthened²⁷, the external impact of the GMS contract resulted in remote and rural service delivery challenges climbing up the political agenda.

Discussion

This study explores whether the Scottish model of centralised nurse telephone triage, introduced by NHS 24, was appropriate for remote and rural areas. There was widespread support for the concept of a national nurse-led telephone consultation and triage service for Scotland. Other research studies have shown that models of telephone triage had positive effects during the out-of-hours period, by easing demand for other healthcare resources when general practice surgeries/ family physician offices are closed (generally 18.00–08.00 weekdays, weekends, bank and public



holidays)¹⁻³. In Western Australia, the HealthDirect telephone triage service, covering some of the world's most isolated communities, reduced demand on A&E departments¹. The workload of rural duty doctors in parts of New Zealand was also reduced, where out-of-hours calls from a practice were diverted to the triage service Healthline². The Canadians measured the use of the Direct Health/Télésanté service by surveying patients' intent when contacting the service, the nurse advice given, and actual service taken up. Results demonstrated the introduction of the service increased the use of self-care (relative to original patient intent) and reduced visits to emergency departments for those in rural areas³. However, findings presented here suggest that during the original planning for NHS 24, the potential challenges of delivering the service in remote and rural Scotland were not addressed. This was exacerbated by a lack of awareness of the implications that remote and rural geography has for healthcare provision. Although the service took steps to recognise remote and rural issues, some partners were frustrated that the response was not more timely.

The findings in this study are comparable with other research evidence, which demonstrate the challenges facing new service developments to adapt to remote and rural healthcare arrangements. Previous research has argued that centralised service models affect the wider social structure of remote and rural communities and therefore require a holistic approach to designing or re-designing such services¹¹. Additionally, the assessment of remote and rural patients may require a different approach to achieve appropriate outcomes. For example, remoteness from healthcare services and weather conditions can impact on decision-making⁵.

It has been suggested that when implementing 'one size fits all' health models in remote and rural communities, 'rural proofing' may help to ensure health policies are sensitive to addressing rural health care¹³. Undertaking rural proofing prior to implementing new health service developments can assist in certifying its appropriateness for remote and rural settings. It can also enable the identification of possible

impacts of the policy, and highlight any necessary adjustments.

It is unfortunate that remote and rural issues were not identified during the early phase of design and implementation of NHS 24²⁰. One explanation for this was that these challenges did not become apparent until NHS 24 began implementing in areas of Scotland where GP co-operatives did not exist (primarily Scotland's most remote areas). Coupled with the unexpected re-design of out-of-hours services caused by the GMS contract, the impact of such changes were more apparent in remote and rural communities. This resulted in negative NHS 24 press reported in the media; a consequence of neglecting remote and rural health service delivery during the design phase.

Since this research was conducted, five new 'satellite' centres have been developed throughout Scotland in response to addressing remote and rural healthcare needs. Located primarily in health boards with large rural populations, these satellite centres are staffed by nurses with local knowledge in order to facilitate regional sensitivities, as NHS 24 continues to be the first point of contact for all patients during the out-of-hours period. Models of nurse-led triage need to be adaptable to differences in service configuration and geography in order to meet the demands that rurality makes on the health service.

This study demonstrates the challenges of delivering a centralised service model for patients in remote and rural areas. These patients are one example of a group with different or unusual needs. Challenges to delivery of such services may be relevant to patient groups whose healthcare needs are different in other ways (eg people with chronic conditions or special health needs). Recent studies have demonstrated that the triage process does not fit well with the 'holistic ethos of end of life care'²⁸. There is a need to ensure that people in differing circumstances are well served by health services aimed at the general population. It is therefore suggested that new health service designs are 'proofed' for remote and rural complexities.



Conclusions

This research has demonstrated that anticipation of remote and rural healthcare need is crucial, when designing and implementing new models of health services. In the case of the introduction of NHS 24 into remote and rural Scotland, three issues were identified as critical to successful service delivery. These issues were the rigidity of the nurse triage model, the need to understand variation of health service delivery, and the importance of using local, professional knowledge. The centralised model of nurse telephone triage proved inappropriate for remote and rural Scotland. Further research is required to identify whether such models accommodate the needs of other geographical areas or patient groups.

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